EMPIRICAL STUDIES ON EVA AND PROFITABILITY RATIOS ASSOCIATION WITH ANNUAL STOCK RETURN FOR INDONESIA COMPANIES

Doan Siscus Kaldianto Lingga[1]
BINUS Business School

Junius Tirok[2]
BINUS Business School

ABSTRACT

This research analyzes the influence of Economic Value Added (EVA) and profitability ratios measurement on Indonesian public companies stock returns. The companies are firms that are listed in the Indonesia Stock Exchange (IDX) and that take part in the LQ45 group. The profitability ratios that are used in this research are profit margin (PM), return on sales (ROS), return on equity (ROE), and return on assets (ROA).

The aim of this research is to prove the claim that EVA is associated more with company annual stock return rather than profitability ratios. The methodology that is used in this research is a multiple regression test to measure the significance between EVA, profit margin (PM), return on sales (ROS), return on equity (ROE), and return on assets (ROA) with the company annual stock returns.

The research result shows that in the end the research prove that EVA does not influence profitability ratios in association with company stock returns. The evidence indicates that profitability ratios are closely associated with company stock returns with the highest significance. More specificly, return on equity (ROE) is the most associated profitability ratio with stock returns followed by return on assets (ROA).

[1] Alumni of BINUS Business School (doansiscus@yahoo.com)
[2] Faculty of BINUS Business School

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BACKGROUND

Since the modern era of economy, many practitioners and financial guru declare that every company's main objective is to maximize shareholders wealth, one of them is Brigham and Daves (2004, p5). This is logical since shareholders are the owners of the company and as a rational investor they expect good long term yield and on their investment. This issue in the past however been often partly ignored or at the minimum misunderstood. This can be seen from the measurement system that taken place in past. Measurement metrics such as Return on investment and Earnings per share are used as the most important performance measures and even as a bonus base in some large company.

Nowadays managers are feeling increased pressure to deliver value, they often lack of necessary diagnostic tools to measure the outcome of their activities. Moreover they're lack of value creation which is the way of persuading capital providers that funds will be productively and profitably employed their companies.

Investor have always cared about stock returns, but profound changes have emerged in corporate boardrooms in the last 20 years, first in the United States and more lately spreading to Europe, Latin America and Asia including Indonesia. Sources of factors and circumstances have led boards of directors and senior executives to rethink their roles and those of their companies, especially as regards to value creation.

The growing predominance of the shareholder wealth culture is largely a consequence of several major developments:

- The globalization and deregulation of capital markets
- The end of capital and exchange controls
- Advances in information technology
- More liquid securities markets
- Improvements in capital market regulation

- Generational changes in attitudes towards savings and investment
- The expansion of institutional investment

A generation ago, capital markets were both highly segmented and regulated. Limits on capital flows, combined with low liquidity in most of the world's securities markets, meant that capital resources tended to stay put. Corporate managers liked it that way, because pressure for performance was restrained. Even when companies underperformed, senior managers were rarely fired.

Despite the absence of capital market pressure, many companies fared well, making a lot of money for their investors thanks largely to robust economic growth. We can look back that in the 30 years after World War II, growth rates of 4 percent, 5 percent of even higher is common in several foreign companies. In such world, companies didn't have to be good to create profit; they had only to be there. Connections where important; ties to the political, commercial, and financial elite of the day were often more critical to corporate success than strategic vision or managerial excellence.

But this condition underwent profound changes in the 1970s and early 1980s, beginning with free-floating exchange rates in currency market, and followed by the OPEC oil crisis, the end of fix brokerage commissions in the United States, the and the recent free trade era (AFTA). The General Trade Agreement on Tariffs and Trade, or GATT, played an important role too, as did the gradual strengthening of the European Economic Community (later the European Community and now the European Union)

In this new world, companies must not only to be competitive in commercial markets, but they also are competitive in capital markets. Otherwise, their cost of capital will be higher than their competitors, Young and Byrne (2001, p8), a problem that is corrected by either improved performance by takeover. In the worst cases, company will go bankrupt. All managers understand that for their companies to survive and growth they must be competitive in terms of operating cost – such as labor, materials, or administrative costs. What has changed is that survival also requires competitive capital costs, a reality still not fully appreciated by many corporate managers.

Currently the most recognize value based measure is called Economic Value Added (EVA). One of its virtues is even though as new concept, EVA is applicable enough to be applied. EVA is not a new concept; it was economist have long called economic profit. But what have been lacking until recent years was a method to measure EVA, and, equally important, a finely calibrated incentive compensation system, based on EVA improvement, to motivate managers and other employees

Unfortunately EVA is valuing measure is not popular in Indonesia as one of the biggest emerging countries in Asia Pacific. By understanding major companies EVA in Indonesia it will help us to know the real economic profit that the Indonesian company has. The aim of this research is to test whether EVA is the prime driver of company's stock return by outperforms profitability measurement in Indonesia major companies.

LITERATURE STUDIES

The traditional discounted cash flow model provides a rich and thorough analysis of all of the different ways in which a firm can increase value, but it can become complex, as the number of inputs increases. It is also very difficult to tie management compensation systems to a discounted cash flow model, since many of the inputs need to be estimated and can be manipulated to yield the results that one wants. If we assume that markets are efficient, we can replace the unobservable value from the discounted cash flow model with the observed market price, and reward or punish managers based upon the performance of the stock. Thus, a firm whose stock price has gone up is viewed as having created value, while one whose stock price goes down has destroyed value. Compensation systems based upon the stock price, including stock grants and warrants have become a standard component of most management compensation package.

While market prices have the advantage of being updated and observable, they are also noisy. Even if markets are efficient, stock prices tend to fluctuate around the true value, and markets sometimes do make big mistakes. Thus, a firm may see its stock price go up, and

its top management rewarded, even as it destroys value. Conversely, the managers of a firm may be penalized as its stock price drops, even though the managers may have taken actions that increase firm value. The other problem with using stock prices as the basis for compensation is that it cannot be disaggregated beyond the firm level. Thus, it cannot be used to analyze the managers of individual divisions of a firm, and their relative performance.

In the last decade, while firms have become more focused on value creation, they have remained suspicious of market gyrations. While they might understand the notion of discounted cash flow value, they are unwilling to tie compensation to a value that is based upon dozens of estimates. In this environment, new mechanisms for measuring value that are simple to estimate and use, do not depend too heavily on market movements, and do not require a lot of estimation, find a ready market. The two mechanisms that seem to have made the most impact are:

- Economic Value Added, and its variants, which measures the dollar surplus value created by a firm on its existing investment, and
- Market Value Added, which measured the percentage return made by a firm on its existing investments

In competitive economic condition nowadays, the expectation level to company is more than wealth creating institution, but also in multiplying their treasure. This kind of act is requiring precise and measures action. Measurement based on accounting profit such as earnings per share, price earnings ratio, and return on equity is not enough to evaluate company efficiency and affectivity (seek quote). Nowadays many company in North Europe adapt value creation such as AT&T, Briggs & Stratton, Coca Cola, CSX, Duracell, Eli Lilly, Equifax, Georgia Pacific, Olin, Quaker Oats, Sprint, SPX, and Whirlpool (Stern Stewart & Co., 1997 web site).

In general, we can differentiate company performance into three categories:

1. Earning Measure,
   Earning measure based on accounting profit. Example of valuation method for earning measure are Earning Per Share (EPS), Return

on Investment (ROI), return on capital employed (ROCE), and return on equity (ROE)

2. Cash Flow Measure,
   Cash flow measure based on operating cash flow performance. Example of valuation method on this category are free cash flow, cash flow return on gross investment (ROGI), cash flow return on investment (CFROI), total shareholder return (TSR) and total business return (TBR)
3. Value Measure,
   Value measure is based on value based performance. Include in this economic value added (EVA), market value added (MVA), cash value added (CVA) and shareholder value (SHV).

There are three things that differentiate EVA with other financial measurement which is:

1. EVA doesn't limited by common accounting principal. EVA user can adjust to their specific condition
2. EVA can support to any company decision such as capital investment, employee benefit and compensation
3. The simple structure of EVA cause EVA can be used by engineering, environmental, and other department to communicate different aspect of financial performance

Cost of capital can be also called as weighted average cost of capital (WACC) or sometimes can be call capital cost rate (CCR). The weighted average cost of capital is the discount rate, or time value of money, used to convert expected future free cash flow into present value for all investor

The cost of capital for any investment whether in a project, a business division, or an entire company, is the rate of return a capital provider would expect to receive if the capital is invested elsewhere, in a project, asset, or company of comparable cost of capital. The cost capital is based on expected returns, not historical returns. The cost of capital is an opportunity cist that reflects the return investors expect from other investment of similar risk.

The risk element is crucial to understanding the cost of capital and how its calculated. All investors are risk-averse, preferring less risk to more. Of course, this does not mean that investors must be paid to

bear it. The price of the risk are the higher returns that they're receiving.

According to Copeland and Murrin (2000, p385), "*Calculating cost of capital in emerging market can be challenging*". Copeland Many local markets are not integrated with the global market and usually there are restraints on the ability of local investor could be considerably different than a global investor.

For the sake of the completion of this study, the author assumes that the global economy will become fully integrated. The cost of capital that will be used in these research are using Capital Asset Pricing Model (CAPM).

Bodie and Merton in their book Bodie and Merton (2000, p77) define that there are five main aspect of the firms performance through ratio. Those ratios are:

1. Profitability
   The profitability ratios are financial metrics that are used to assess a business's ability to generate earnings as compared to its expenses and other relevant costs incurred during a specific period of time.
2. Asset turnover
   The asset turnover ratios are the measure of firm's capability to use its asset effectively to produce revenue
3. Financial leverage
   The financial leverage ratio will highlight the capital structure of the firm and the extent to which its burdened with debt.
4. Liquidity
   The liquidity ratios will measure the ability of the firm to meet its short term obligations, or to pay its bills and remain solvent.
5. Market value
   The market value ratios will measure the relation between the accounting representation of the firm and the market value of the firm.

RESEARCH METHODOLOGY

There are several steps that need to be done in order to finish this research. The first phase that the author would do is to choose the topic for the research. If the topic has defined, the author then search related literature studies and journal that can be used as the main knowledge source. The literature studies will strengthen all the theory that being used as the foundation of this research. The literature studies came in a form of published books, published working papers, published research, accounting journals, and internet reference.

The next step is to define the problem that this research will try to solve. The problem that this research try to solve is to give empirical prove to test the claim that EVA is what drives stock markets. After the problem is defined, the next step is to determine the hypothesis that contains the author expectation of the test outcome. The author will use multiple regression tests as it's advised by professor Biddle in one of his research. The multiple regression result will be then summarized to conclude the outcome of the test.

There are three main data that is use in this research. The data are integrated from secondary data source. Those data are the company financial statement, risk free rate of Indonesia, and market rate of return. All the variables that are used in this research are derived from the mentioned data. First of all the author need the stock data which are in LQ45 since 2004 and 200. From that stock group, the author needs the monthly closing price and their official published financial statements from 2003 to 2007 period.

The populations that are being used in this research are the companies that are listed in the IDX from 2003 to 2007. To minimize the population size for the sake of the completion of this research, the author use the sample data whereas the sample is choose based on stratified random sampling as the research purpose from the author. Those criteria are:

1. Companies that are listed in Indonesia Stock Exchange (IDX) from period 2003 to 2007.
2. Companies that are belong to LQ45 companies as of 2007.
3. I exclude banks and financial institution from the sample. There are 9 banks or financial institutions that are deleted from the

company sample. For the sake of this research completion I pick 33 Out of those 36 remaining.

4. For the sake in getting population that comply with the scope and measures, the stock are compiled backwards and must comply with these following criteria:
    a. The companies that publish their complete financial and annual report in annual basis for 5 year period that is from 2003 to 2007 complete with all the parameters and data input that will be used in calculation process in this research.
    b. The companies must have been listed in Jakarta stock exchange at least since January 2003.
    c. The company must have official financial report as of 31st December 2007. This is important to avoid timing difference impact while the variable is being measure.
    d. The company stock price data movement is available at least since December 2003.

In conducting the research, the author is using 2 analysis methods which are descriptive and analytic, Descriptive method is a analysis method through diagram, graphic, along with explanation. Analytic methods are held using statistic test with bivariate correlation test and multiple regression tests. The analysis steps are:

1. Define beta values for each of the stock by doing linier regression to IHSG as the independent variable and closing weekly price as the dependent variable
2. Calculate companies cost of capital
3. Calculate the company's NOPAT (net operating profit after taxes)
4. Calculate the companies EVA.
5. Calculate the company profitability ratios.
6. Calculate the company stock returns.
7. Calculate the company ROS (return on sales).
8. Calculate the company ROE (return on assets).
9. Calculate the company ROE (return on equity).
10. Calculate the company profit margin ratio.
11. Do Pearson correlation test to seek multicollinearity between EVA, profitability ratios, and stock returns.
12. Detect the multicollinearity by analyze the variance inflation factor (VIF) values between independent variables.

13. Do multiple regression test between EVA, profitability ratios, and stock returns.
14. Do stepwise regression to determine which independent variable that have the most association with stock returns.
15. Test the significance between EVA, profitability ratios and stock returns using simple linier regression.
16. Conclude and summarize the findings

Based on the test that being done, the hypothesis that will be tested in the research is are based on what is the association between EVA and profitability ratios with the company annual stock return in LQ45 companies.
The hypothesis that is used in this research are:

H_{10} = EVA is associated with stock returns.
H_{11} = EVA is not associated with stock returns.
H_{20} = Combined profitability ratios (ROA, ROE, ROS, and PM) associated with stock return.
H_{21} = Combined profitability ratios (ROA, ROE, ROS, and PM) is not associated with stock return.
H_{30} = ROA is associated with stock returns.
H_{31} = ROA is not associated with stock returns.
H_{40} = ROE is associated with stock returns.
H_{41} = ROE is not associated with stock returns.
H_{50} = ROS is associated with stock returns.
H_{51} = ROS is not associated with stock returns.
H_{60} = PM is associated with stock returns.
H_{61} = PM is not associated with stock returns.

The hypothesis is build up is based on the studies and research that conducted by Professor Biddle and his colleagues that shout that EVA is not the prime movers of company return Chen, Shimen (1998). Professor Biddle and Professor Chen argue that accounting earnings is highly associated with company stock return rather than EVA. On the other hand, Stern Stewart claims that EVA is the one who moves stock prices rather than ROE, ROI. Based on the correlation test, the author can define which are the statement are true and can implemented in Indonesia market.

In the next chapter, the author will show the main factor that dominates company annual stock returns the most.

RESULT

On this chapter the author will explain the company samples that listed in IDX. More specific, the companies that are used as sample are the companies that are listed in LQ45 group. The variable that being used in the research are economic value added (EVA), return on asset (ROA), return on sales (ROS), return on equity (ROE), profit margin (PM) and company annual stock returns.
Here is some brief description of each variable that being used:

1. Company EVA
   The economic value added (EVA) is a measure of surplus value created on an investment.
2. Company return on Sales (ROS) or operating profit margin
   Return on sales (ROS) is the ratio that show company's operational efficiency. ROS also known as firm operating profit margin.
   This measure is helpful to management, providing insight into how much profit is being produced per dollar of sales. As with many ratios, it is best to compare a company's ROS over time to look for trends, and compare it to other companies in the industry. An increasing ROS indicates the company is growing more efficient, while a decreasing ROS could signal looming financial troubles
3. Company return on assets (ROA)
   The return on asset (ROA) percentage shows how profitable a company's assets are generating revenue. ROA shows how efficient the management is at using its assets to generate earnings.
4. Company return on equity (ROE)
   The return on equity (ROE) is a measurement that measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. ROE also shows how the company uses the investment dollar (IDR) to generate earnings growth.
5. Company gross profit margin

The gross profit margin is related with the net profit margin, which assesses the profitability of a firm's core activities, excluding fix cost.
Profit margin measures how much out of every dollar of sales a company actually keeps in earnings.

6. Company annual stock returns
   The company annual stock return shows the growth rate of company stock in the number of years in the period of being considered.

The EVA calculation is done in yearly basis. All the companies' data is gathered in year per year basis and inserted to specific formula to count the EVA value as shown in figure 3.3
The details of EVA calculation can be seen in the appendix sections

From the calculation, there are 33% consisting of 44 points from 132 points of measurement that has positive EVA value. It means that more than half of the measurement have negative EVA performance. The bellow figure will describe the view better.

The Profitability ratios calculation is done in yearly basis based on the official company financial statements. All the companies' data is gathered in year per year basis and inserted to specific formula to calculate the Profitability ratios shown in figure 3.4.

The profitability ratios score for each of the company in each of the period can be found in the appendix section

The calculation result shows all the profitability ratios that being used in the next multiple regression for each of the LQ45 companies in yearly basis.
The regression test will be done to three parts:

1. Multiple regression test that will involved all the independent variable.
2. Stepwise statistic test to identify which variable that has the highest association with the stock returns.
3. Simple linier regression test that involve all of the independent variables.
   Simple linier regression test will give us confirmation and justify the previous two statistic result.

At the end the author will conclude the findings based on the output of the test. The test output will also challenge the hypothesis that claims EVA is more associated with stock return rather than profitability ratios.

The independent variables are:

1. Profitability ratios (combination of ROA, ROE, ROS, and PM)
2. ROA (return on asset)
3. ROE (return on equity)
4. ROS (return on sales)
5. PM (profit margin)

And the dependent variable is company annual stock return.

From the above output we can see that none of the variables that has correlation score > .90. Even there are no variable that have correlation score > .75. Therefore the author can conclude that there's no multicollinearity between the variables that being used in this research. The highest correlation that exists is between ROE return with ROA with .64 and ROS with ROA with .51 correlation score.

The conclusion from the multicollinearity test are all variables that being used as the independent variables (EVA, ROA, ROE, ROS, and PM) can be used in the next regression test since its proven that there are no multicollinearity among the variables.

Stepwise regression is a semi-automated process of building a model by successively adding or removing variables based solely on the *t*-statistics of their estimated coefficients. Properly used, the stepwise regression option in Statgraphics (or other stat packages) puts more power and information at researcher fingertips than does the ordinary multiple regression option, and it is especially useful for sifting through large numbers of potential independent variables and/or fine-tuning a model by poking variables in or out. Improperly used, it may converge on a poor model while giving you a false sense of security. It's a bit like doing carpentry with a chain saw: you can get a lot work done quickly, but you may end up doing more harm than good if you don't read the instructions, remain sober, and keep a firm grip on the controls.

The stepwise test shows that the stepwise test only needs 1 model to determine the excluded variable from the model which is ROE. The model also exclude all variable including EVA in the first round of test. The model only need one round of test to determine which are the best variable. The model also shows that EVA, ROA, ROE, ROS, and PM all have significance > 0.05, therefore there are no significance between EVA, ROA, ROE, and ROS based on the stepwise regression test. But please note that even though the ROA significance is > 0.05 in this stepwise test, but if we conduct single regression test on ROA and stock returns, we find that ROA have 0.04 significance result.

From the stepwise test result, correlation result, and quick simple linier regression test above, the author can conclude that profitability ratios are outperforming EVA in association with stock returns. More specifically, ROE is the most associated variable amongst the profitability ratios that associated with stock returns. The author can test the pre defined hypothesis based on the given output. The findings prove the claim that says "*EVA is what drives stock returns; forget accounting earnings*" are not valid. Therefore the author can:

1. Reject H_{10} and accept H_{11}. The test show that combined profitability ratios is more associated with stock returns. And when stepwise multiple regression conducted, the model choose ROE to become the most associated variables with stock returns and get the highest R^2.
2. Therefore the author accept H_{40} and reject H_{41}. Besides ROE, ROA also have significant association with stockreturn, therefore the author accept H_{30} and reject H_{31}.
3. Since there are no significance between ROS and PM with stock returns therefore the author reject H_{50} and H_{60} and accept H_{51} and H_{61}.

CONCLUTION AND SUMMARY

Based on the data of the 33 companies that being tested, the author in the end concludes:

1. Based on the multiple regression tests on the combined companies show any association between EVA and annual stock return.

2. On the other hand the combination of profitability ratios shows significant association to company annual stock return.
3. Not all profitability ratios that being tested shows association with stock returns. From the four tested profitability ratios, only ROA and ROE that have significance association with stock return. There are no associations between ROS and PM with stock returns (the same with between EVA and stock returns).
4. ROE is the most associated profitability ratio with stock returns followed by ROA.
5. In literature studies section show us the claim that NI is outperform EVA in associated with stock return. This is tally with this research result. The result shows that ROE is the most associated variables with stock returns followed by ROA. Literature studies define that ROE is NI divided by average stockholders equity.
6. Based on the above result, the author can conclude that profitability ratios are outperforming EVA in association with stock return. Therefore the author is in the favor of Professor Biddle and colleagues that disprove claims that EVA is the prime factor of stock returns.

Based on the summary above, bellow are the points that can be used as consideration in the extension of the research:

1. For the next research activities, the researcher would like to suggest extending the period in each of the samples if the data is available. For instance the longevity of the observation could be increase up to 8 years of time once the complete annual report for 2008 performance is published.
2. EVA is the other word of economic profit. The research could also expanded which company characteristic that derived economic profit of one companies. For instance we can analyze whether mix ownership have significant impact to economic profit. IE. Government firms VS. non government firms.
3. For the next research activities, the researcher would like to suggest to adding more samples in the measurement and correlation testing.
4. Other method can be applied in measuring the correlation between EVA and profitability measurement to company annual stock return.

5. For investor, the author suggests to add more measurement such as liquidity measurement in order to get wider view of the correlation.
6. For practitioners, the author suggest if we can develop one portal that holds complete snapshot of public companies stock performance and market stock performance and update it periodically.
   The data complexity and data scarcity is one the obstacle that the author face in completing this research.
7. The author suggests upgrade in IDX portal so it can serve investors, public society and data searchers better.
8. For practitioners, need to develop one portal that holds standardize annual and financial report of all public companies in Indonesia.

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